UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,969	12/13/2001	Joseph F. Garvey	RAL920000122US1	7203

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EXAMINER
CHOW, CHIH CHING

ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	10/022,969	GARVEY, JOSEPH F.
Office Action Summary	Examiner	Art Unit	
	Chih-Ching Chow	2122	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>20 October 2004</u>.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☐ Claim(s) _____ is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-10</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>13 December 2001</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a) ☐ All   b) ☐ Some * c) ☐ None of:

  1. ☐ Certified copies of the priority documents have been received.

  2. ☐ Certified copies of the priority documents have been received in Application No. _____.

  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/13/2001</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to amendment dated October 20, 2004.

Response to Amendments

2.   The objection to specification is withdrawn in view of Applicants' amendment

to specification dated 10/20/2004.

3.   The objections to claims 1 and 6 are withdrawn in view of Applicants'

amendment to claims 1 and 6 dated 10/20/2004.

Response to Arguments

4.   Applicants' amendment dated 10/20/2004, responding to the 09/20/2004

Office action provided in the rejection of for claims 1-10 under <u>35 USC 103</u>

<u>rejections</u>, wherein claims 1, and 6 have been amended. Claims 1-10 have been fully

considered, however, they are not persuasive. The rejection of claims 1-10 under

35 U.S.C. 103(a) as being unpatentable over U.S.2002/0016639, by Marjorle L.

Smith et al. (hereinafter "Smith"), in view of U.S. Patent No. 6,715,141 by Bruce

Hodge (hereinafter "Hodge"), further in view of U.S. 2002/0129341, by Gregory

Hibdon (hereinafter "Hibdon"), and further in view of U.S. Patent No. 5, 768,564

by Kristy A. Andrews (hereinafter "Andrews") is thus maintained. Following is the

examiner's response to Applicants' arguments.

5.   Applicant primarily arguing for the following items:

(1) Claims are patentable over Smith since 'macro' was taught in Smith's prior art, instead of 'identifier token', thus the claimed step of 'receiving an identifier token from source code' is not taught or suggested by Smith.

Examiner's response:

In current application's Abstract, applicant cites "if the identifier token matches a macro name stored in the symbol table, the lexer replaces the identifier token with a macro form token." – this indicates that an 'identifier token' is a predefined 'macro' name. The claim can be rejected even it doesn't use exactly same term as a prior art does, the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Therefore it's invalid to argue about Smith's 'macro' is not 'an identifier token'. It has been stated clearly in the first action rejection, Smith's "macro" has the same meaning as the claimed "identified token".

(2) None of the cited references teaches or suggests the claimed step of sending predefined strings to a glue routine, and the claimed step of invoking a macro invocation parser by the glue routine.

Examiner's response:

Even none of the references cite 'glue routine' specifically, but the <u>function</u> has been taught in the cited references. See Hibdon paragraph 41, "By using a

tokenizing module in conjunction with an 'as if' parser, the lower level complexity is separated from the parsing. The HDL parsing program is presented with a stream of tokens by the tokenizing module 'as if' all the macros have been expanded" – this part of the processing collects and connects all the tokens, which has the same function as the 'glue routine' specified in the current application.

(3) Motivation fro the references for modification was not provided by the Examiner.

Examiner's response:

In response to applicant's argument that "The Examiner cannot use hindsight reconstruction to pick and choose among disclosures in the prior art to make the § 103 rejection", it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The Examiner does not use Applicant's claim as a 'blueprint', the motivations are reasonable and possible to the Examiner that all the combinations would have been made. In response to applicant's argument that there is no suggestion to combine the references, "the cited references cannot be combined for the § 103

rejection unless some nexus between the cited references can be provided by the

Examiner", the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed

invention where there is some teaching, suggestion, or motivation to do so found

either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed.

Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this

case, motivations of the combinations were cited clearly in the bottom of page 5,

for the purpose of using 'shorthand expressions' for longer constructs (Andrews,

paragraph 12), and able to expand macros during parsing phase (Hibdon, paragraph

41).

(4) Claims 2-5 (and similarly Claims 7-10) recites that the claimed receiving,

replacing, transferring and sending steps should be performed by a 'lexer'. The

term 'lexer' was never mentioned in any of cited references.

Examiner's response:

Any process does lexical analysis can be a 'lexer'. Again, even the cited

references do not use 'lexer' specifically, the functions have been disclosed. All the

functions specified in Claims 2-5 (similarly Claims 7-10) are covered in the prior

arts (but they don't specifically name the processes are done by 'lexer'); therefore, the current application is not patentable.

6.   Claims 1-10, all remained pending claims, stand finally rejected in light of the additional clarifications provided and/or addressed at item 5 above. The claims rejection from the previous rejection of the previous office action of September 20, 2004, paper number 5 (pages 2-7), in conjunction with the amendment dated October 20, 2004 is reproduced below for Applicants' convenience.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1 - 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.2002/0016639, by Marjorle L. Smith et al. (hereinafter "Smith"), in view of U.S. Patent No. 6,715,141 by Bruce Hodge (hereinafter "Hodge"), further in view of U.S. 2002/0129341, by Gregory Hibdon (hereinafter "Hibdon"), and further in view of U.S. Patent No. 5, 768,564 by Kristy A. Andrews (hereinafter "Andrews").

CLAIMS

1. A method for processing macros of varying grammatical invocation by a pre-processor, said method comprising;

(a) receiving an identifier token from source code;

(b) in response to said <u>received</u> identifier token matching a macro identifier stored in a symbol table;

(c) replacing said identifier token with a macro form token corresponding to said identifier token from said symbol table;

(d) sending said macro form token to a glue routine;

(e) invoking a macro invocation parser by said glue routine;

(f) transferring tokens to said macro invocation parser via said glue routine until a completion of said macro invocation; and

(g) sending a macro body definition of said macro to a lexer by said macro invocation parser.

Smith / Hodge / Hibdon / Andrews

For item (a), (b) and (c), see Smith, paragraph 0242, "FIG. 93 is a flowchart representation of other particular aspects of the compiling process. The process commences at block 1181, and continues at block 1183, wherein the system **receives** IHML **source code** at the IHML compiler. Then, in accordance with block 1185, the system utilizes a preprocessor to look up the "macros" contained in the **source code in a macro** table (*matching*). Next, in accordance with block 1187, the system utilizes the preprocessor **to transform all macros into corresponding predefined strings** as set forth in the macro table. (*replacing said identifier token*)". Smith discloses the concepts of **receiving** the token from the source code, **match** if the macro is defined in a macro symbol table and **replacing** the token with the macro form token. For items (d), (e), (f) and (g), Smith does not teach the 'transferring tokens until a completion of said macro invocation' feature. However, Hodge teaches this feature in an analogous prior art, in Hodge, paragraph 7, "In full parse phase, the interpreter **tokenizes** and parses lines of code in their **entirety**, executing the lines of code as they are parsed. The interpreter remains in full parse phase **until a script stop token is detected**. Upon detecting the script stop token, the interpreter switches its mode back to the scan phase." The macro body definition is disclosed by Hibdon. In Hibdon's abstract, "A line of data is read from a design file containing **source code** written in a high level language. Keywords representing specific type of **macro** are generated from the read data, and parsed. If a **macro** is present, the commands representing operation to be performed by

macro, are inserted into stream of keyword. The keywords are written to an output file." Also, Hibdon's figure 2, shows the embodiment of the prior art. Further in Hibdon, paragraph 35, "Initially, an HDL file 205 is read by the tokenizer module 210. Briefly, the tokenizer module 210 reads an HDL line 215 from the HDL file 205 and stores lines as necessary in a lookahead list 230. This lookahead list is used to temporarily store lines as necessary. For example, several lines may need to be stored when a single HDL statement consists of more than one line of code. The tokenizer module 210 **recursively expands** HDL **macros** 220 and **stores the expanded macros in a macro expansion list** 235. As necessary, the tokenizer module 210 reads 225 tokens first from the lookahead list 230, then from the macro expansion list 235, and finally from the HDL file 205 and passes them (*passes the expanded macros*) to the HDL parser module 240. The processing of the **tokenizer module** 210 will be discussed in greater detail below with reference to figure 3." Paragraph 36, "The **HDL parser module** 240 is presented with a stream of tokens from the tokenizer module 'as if' all the macros have been expanded. This allows the parsing to be separated from the problem of selective macro expansion. The parsing program therefore sees only the expanded macros. The 'as if' parsing process is discussed in greater detail below with reference to figure 4." In Hibdon, paragraph 41, "By using a tokenizing module **in conjunction with** an 'as if' parser, the lower level complexity is separated from the parsing. The HDL parsing program is presented with a stream of tokens by the tokenizing module 'as if' all the macros have been expanded"

this part of processing has the same function as the **glue routine** specified in current invention. In the meantime, the 'Macro Expansion List' is like the **'lexer'** which stores the macro body (item g). Andrews further teaches the **macro invocation** in an analogous prior art, in Andrews, paragraph 23, "A 'fragment' represents the result of an invocation of a virtual source production mechanism: source file inclusion, **macro expansion**, or macro formal parameter substitution. Each fragment is linked to the tokens that make up its invocation syntax: a macro formal parameter, a **macro invocation** (including the parameter list), or a token representing a source inclusion directive. Each fragment contains the tokens composing its expansion: a macro actual parameter, a macro body, or an included file. The tokens composing the invocation syntax are themselves contained in another fragment, which represents its context of use. For example, a macro invocation can be embedded in a macro body, or in the main program file."
It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to supplement the **receiving, matching and replacing macro tokens** of Smith with the sending, expanding and storing macros further taught by Hodge, Hibdon, and Andrews, for the purpose of allowing programmers to use shorthand expressions (macros) for longer constructs (See Andrews, paragraph 12), and able to expand macros during parsing phase (See Hibdon, paragraph 41).

2. The method of Claim 1, wherein said receiving step is performed by a lexer.

For the feature of claim 1 see claim 1 rejection. For the rest of claim 2 features declared in the current invention done by 'lexer' has been covered in prior arts by

Smith, Hodge, Hibdon, and Andrews.

3. The method of Claim 1, wherein said replacing step is performed by a lexer.

Same as claim rejection 2.

4. The method of Claim 1, wherein said sending step is performed by a lexer.

Same as claim rejection 2.

5. The method of Claim 1, wherein said transferring step further includes transferring tokens from a lexer to said macro invocation parser.

Same as claim rejection 2.

6. A computer program product residing on a computer usable medium for processing macros of varying grammatical invocation by a pre-processor, said computer program product comprising:
  (a) program code means for receiving an identifier token from source code;

Same as claim 1 rejection.

  (b) in response to said <u>received</u> identifier token matching a macro identifier stored in a symbol table;

  (c) program code means for replacing said identifier token with a macro form token corresponding to said identifier token from said symbol table;

  (d) program code means for sending said macro form token to a glue routine;

  (e) program code means for invoking a macro invocation parser by said glue routine;

  (f) program code means for transferring tokens to said macro invocation parser via said glue routine until a completion of said macro invocation; and

(g) program code means for sending a macro body definition of said macro to a lexer by said macro invocation parser.

7. The computer program product of Claim 6, wherein said program code means for receiving is a lexer.	For the feature of claim 6 see claim 6 rejection. For the rest of claim 7 features declared in the current invention done by 'lexer' has been covered in prior arts by Smith, Hodge, Hibdon, and Andrews.
8. The computer program product of Claim 6, wherein said program code means for replacing is a lexer.	Same as claim rejection 7.
9. The computer program product of Claim 6, wherein said program code means for sending is a lexer.	Same as claim rejection 7.
10. The computer program product of Claim 6, wherein said program code means for transferring further includes computer code means for transferring tokens from a lexer to said macro invocation parser.	Same as claim rejection 7.

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

　　　Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Ching Chow whose telephone number is 571-272-3693. The examiner can normally be reached on 7:00am - 3:30pm.

　　　If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

　　　Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chih-Ching Chow

Examiner

Art Unit 2122

CC

ANTONY NGUYEN-BA
PRIMARY EXAMINER